

List of Elected Claims in Application

1. A method for the production of a 24:1 very long chain fatty acid molecule in a plant seed cell, said plant otherwise incapable of producing seed having more than 5% by weight of said very long chain fatty acid molecule, said method comprising the steps of:
 - growing a plant under conditions wherein said plant produces long chain acyl-CoA molecules in the plant seed,
 - in the presence of an expression product of a very long chain fatty acid molecule-altering DNA sequence operably linked to regulatory elements for directing the expression of said DNA sequence such as to effect the contact between such long chain acyl-CoA molecules and said expression product,
 - and producing said very long chain fatty acid molecule in said plant seed at a level above 5% by weight.
2. The method of Claim 1 wherein said very long chain fatty acid molecule is produced in said plant seed to a level greater than 7% by weight.
3. The method of Claim 1 wherein said regulatory elements direct preferential expression of said DNA sequence in plant seed embryo cells.
4. The method of Claim 1 wherein said very long chain fatty acid molecule-altering DNA sequence is a condensing enzyme encoding sequence from *Brassica*.
5. The method of Claim 4 wherein said *Brassica* encoding sequence is to the CE15 class of condensing enzymes.
6. The method of Claim 4 wherein said *Brassica* encoding sequence is to the CE20 class of condensing enzymes.

11. The method of Claim 1 wherein said regulatory elements direct preferential expression of said DNA sequence in plant seed embryo cells.
12. A plant seed containing a very long chain fatty acid molecule produced in accordance with Claim 1.
13. A plant seed produced in accordance with Claim 1.
29. A method for altering the composition of fatty acids in a plant cell, said method comprising the steps of:
growing a plant under conditions wherein said plant produces long chain fatty acyl-CoA molecules,
in the presence of an expression product of a β -ketoacyl-CoA synthase DNA sequence operably linked to regulatory elements for directing the expression of said DNA sequence such as to effect the contact between such long chain fatty acyl-CoA molecules and said β -ketoacyl-CoA synthase, wherein
 - (i) said β -ketoacyl-CoA synthase is capable of catalyzing the production of very long chain fatty acids from a long chain fatty acyl-CoA substrate and malonyl-CoA,
 - (ii) said DNA sequence is heterologous to said plant, and
 - (iii) very long chain fatty acids are produced in said plant such as to alter the overall fatty acid composition of said plant cell.